Developing and Using Data to Identify and Implement Effective Highway Safety Programs

Iowa Department of Transportation

Nancy Richardson
Iowa Department of Transportation

The Iowa Transportation Landscape

Eastern Iowa Mississippi River Road

Western Loess Hills and Plains

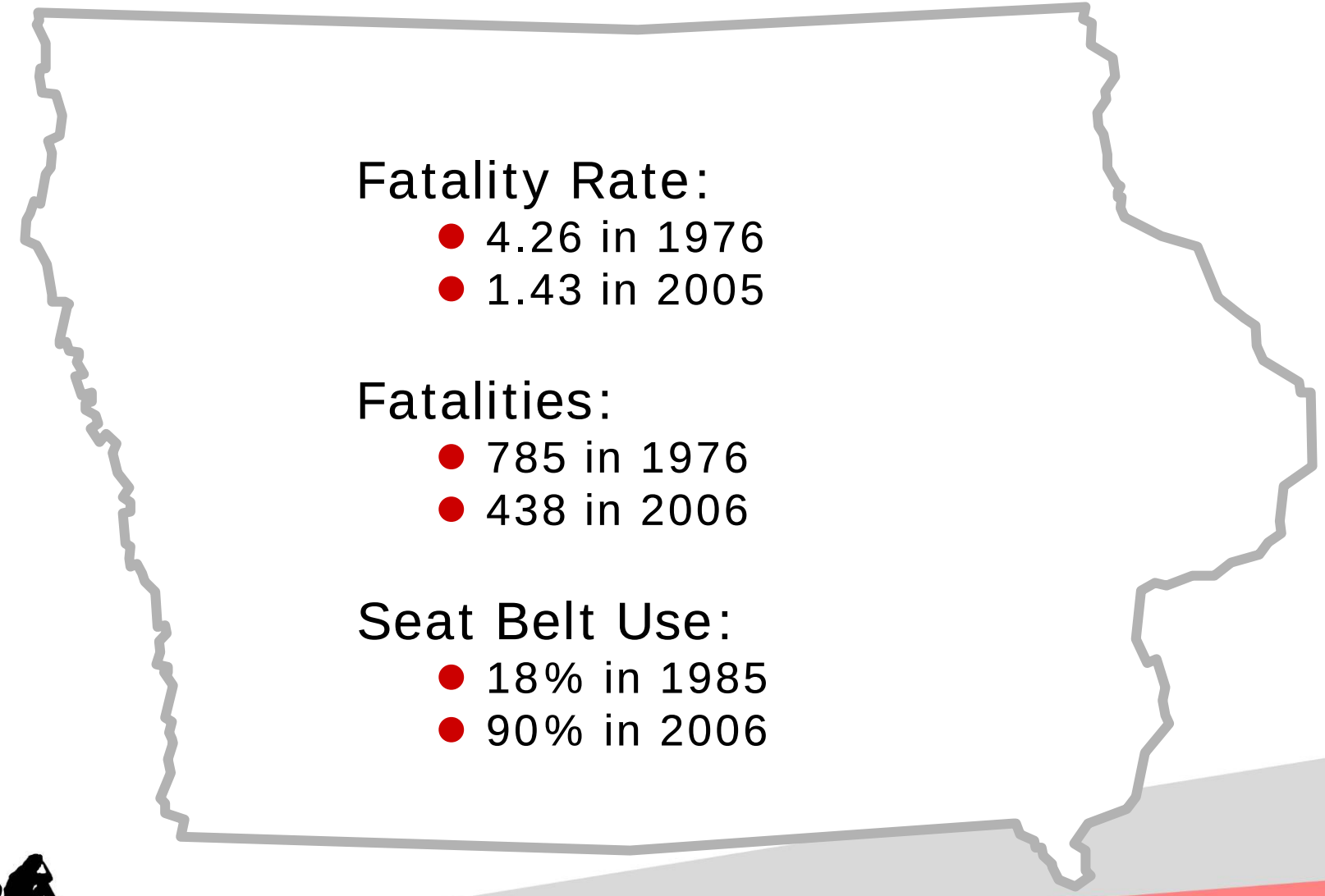
Central Iowa Plains

Iowa Transportation Overview

Iowa 2005 Roadway Characteristics		
~114,000 Miles of roadway		
31.5 Billion miles traveled		
Population	30th	2,944,062
Registered Drivers	29th	2.1 Million (drivers per 1000 population)
Registered Vehicles		3,994,669
Miles of Public Roads	12th	113,838
DOT	*8%*	*8,881 (Excludes ramps)*
Cities	*13%*	*14,097*
Counties	*79%*	*90,212*
Land Area	26th	56,272 square miles
Number of Bridges	5th	24,789 (primarily wood)
Ratio of Drivers age 65+	5th	Nearly 25%

1 DEATH IS 1 TOO MANY

Iowa History of Fatalities



Fatality Rate:

- 4.26 in 1976
- 1.43 in 2005

Fatalities:

- 785 in 1976
- 438 in 2006

Seat Belt Use:

- 18% in 1985
- 90% in 2006

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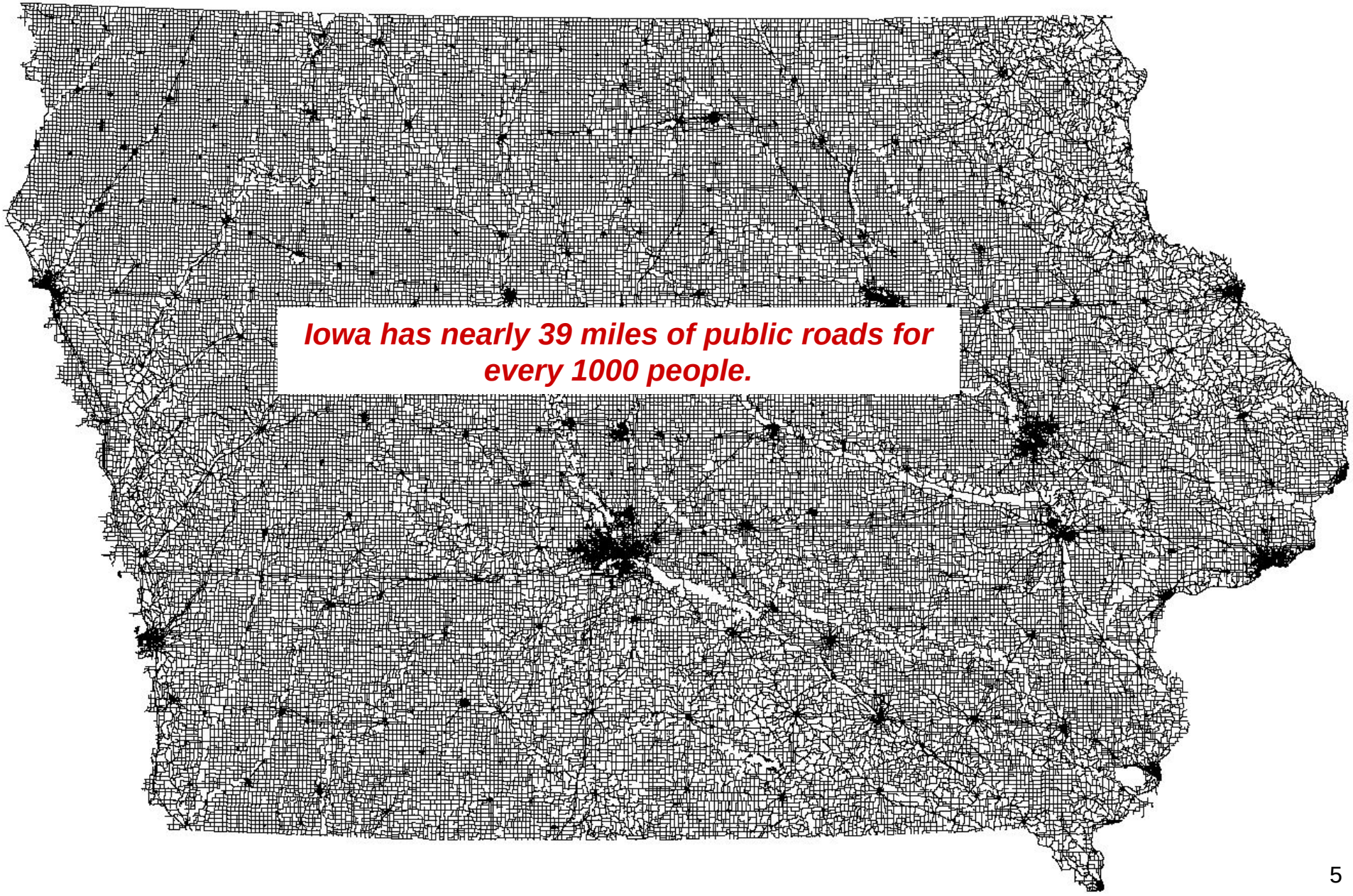
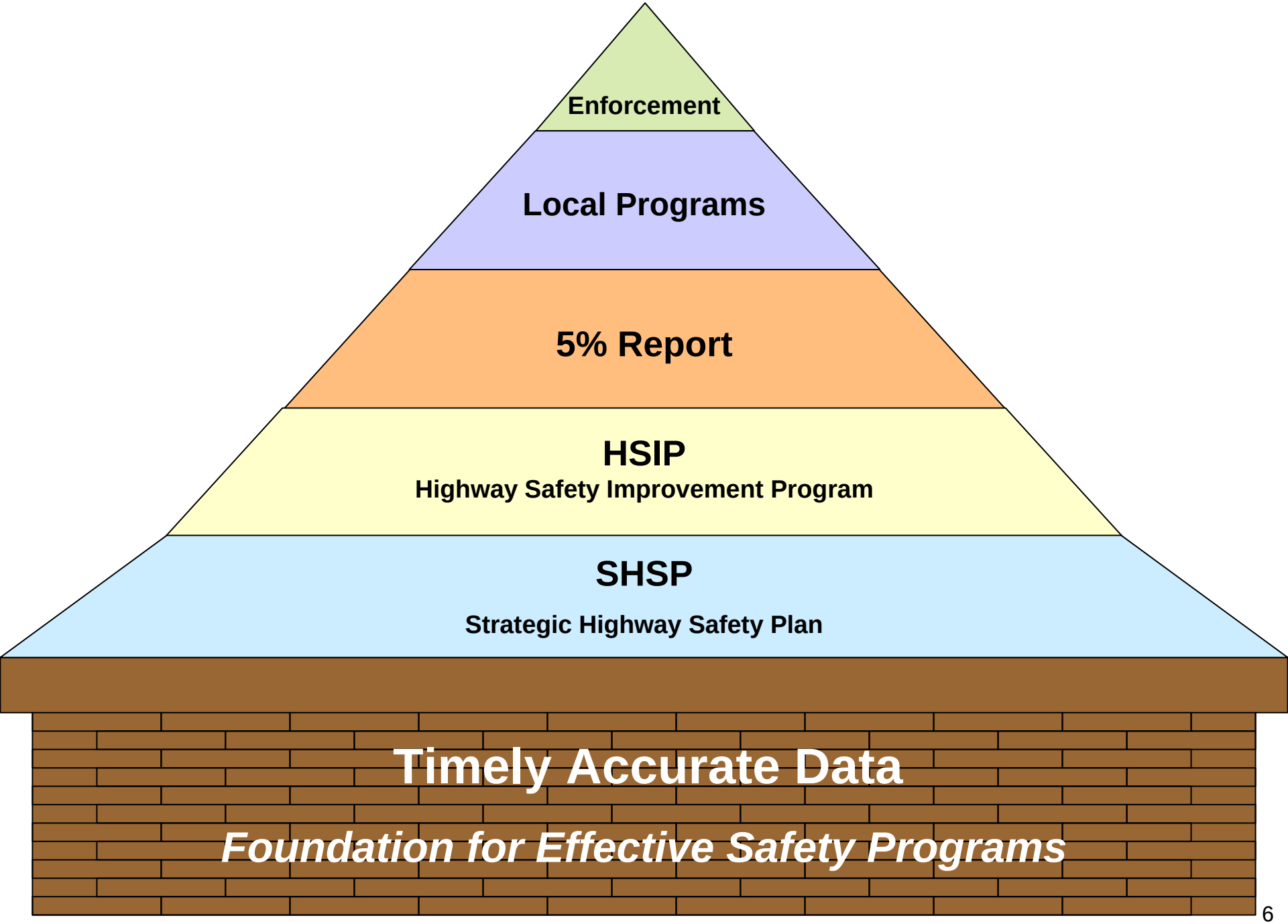
Iowa Public Roads




Enforcement
Local Programs
5% Report
HSIP
Highway Safety Improvement Program
SHSP
Strategic Highway Safety Plan
Timely Accurate Data
Foundation for Effective Safety Programs

Timely Accurate Crash Data Collection

- More than 70% of Iowa's crash data is reported electronically.
- Immediate availability
- Iowa collects crash data on public roads.
- Iowa crash data collected with Traffic and Criminal Software (TraCS) using the Iowa "National Model."
- The data is available for local use simultaneously with the electronic transfer to the statewide files.

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TraCS© Traffic and Criminal Software
Iowa Department of Transportation

Timely Accurate Crash Data Collection

- TraCS is currently used by over 20 states and provinces. http://www.tracsinfo.us/Tracs_Home.asp
- “Smart Map” location tool enables consistent, automated capture of event location on all reports statewide.
- Data is available to local governments.

Outstanding Data Collaboration and Data Sharing

- Long-standing multi-disciplinary Statewide Traffic Records Committee
- Long-standing statewide SMS (Safety Management System) organization.
- SMS “Toolbox” of data defining highway safety areas of concern and potential countermeasures.

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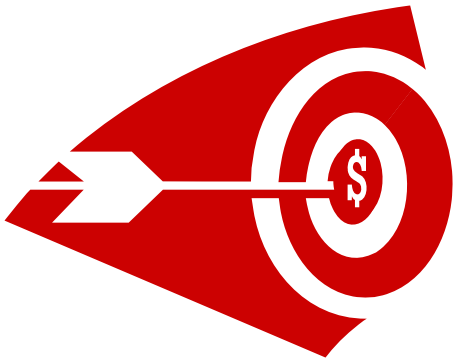
Outstanding Data Analysis Tools

- Ability to analyze data in detail to focus state and local resources where we can optimize the return on our investments.



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Crash Data Analysis Tools

- Iowa's range of data analysis "tools" software is available to state and local entities.
- Technical support and training is made available as needed.
- Many standard reports by county or city are available online.

Applied Data Analysis

- DOT and DPS use similar targeted analyses to address specific crash types and driver behavior.
- Iowa's 5% Most Severe Safety Needs Report included driver behavior.
- Iowa's Comprehensive Highway Safety Plan (CHSP) outlines data-based strategies.

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Applied Data Analysis

- Public Safety and the State Patrol use the analysis tools to target enforcement and identify high crash characteristics locations for five annual corridor enforcement waves in collaboration with local enforcement and media.

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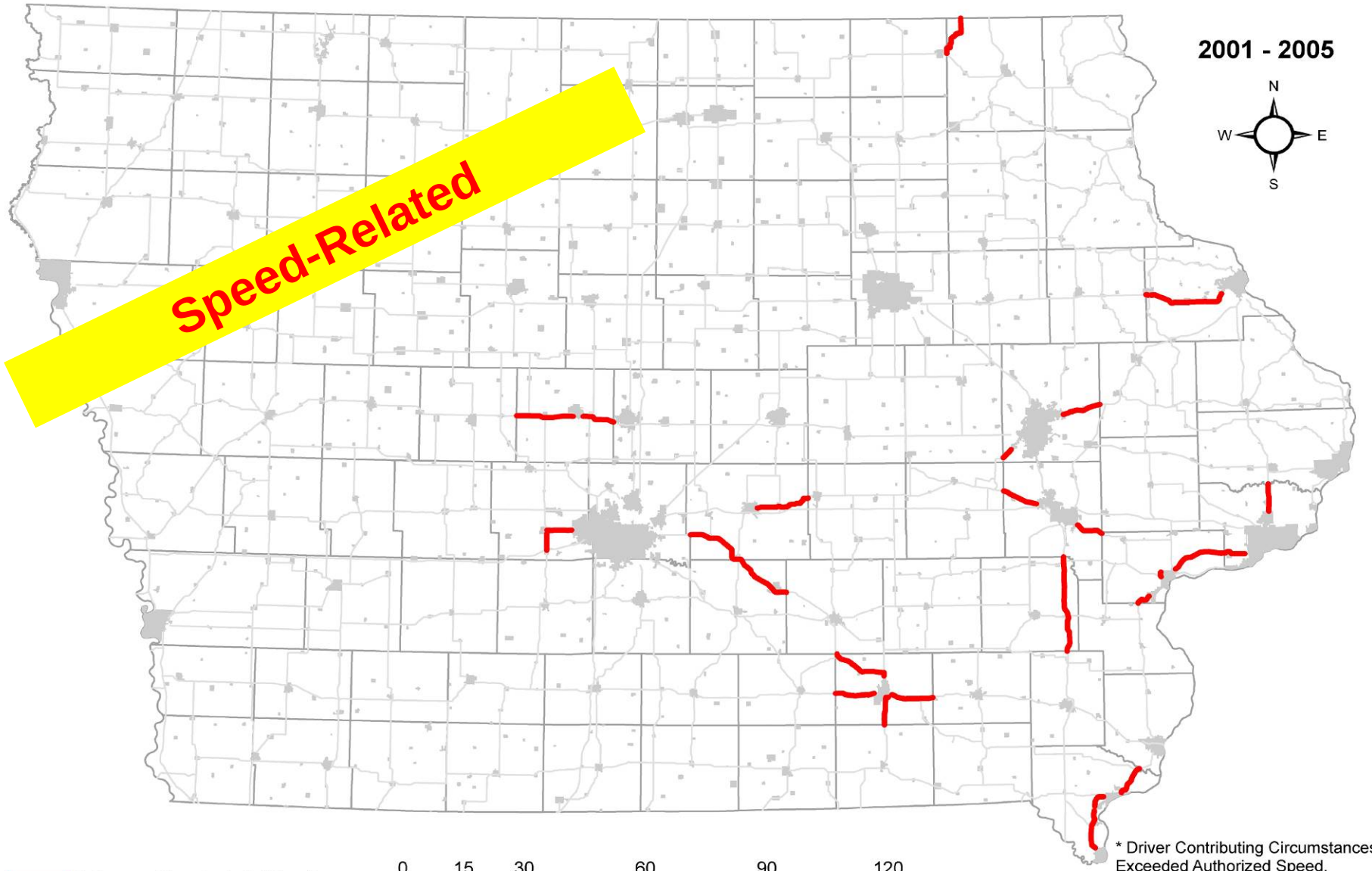
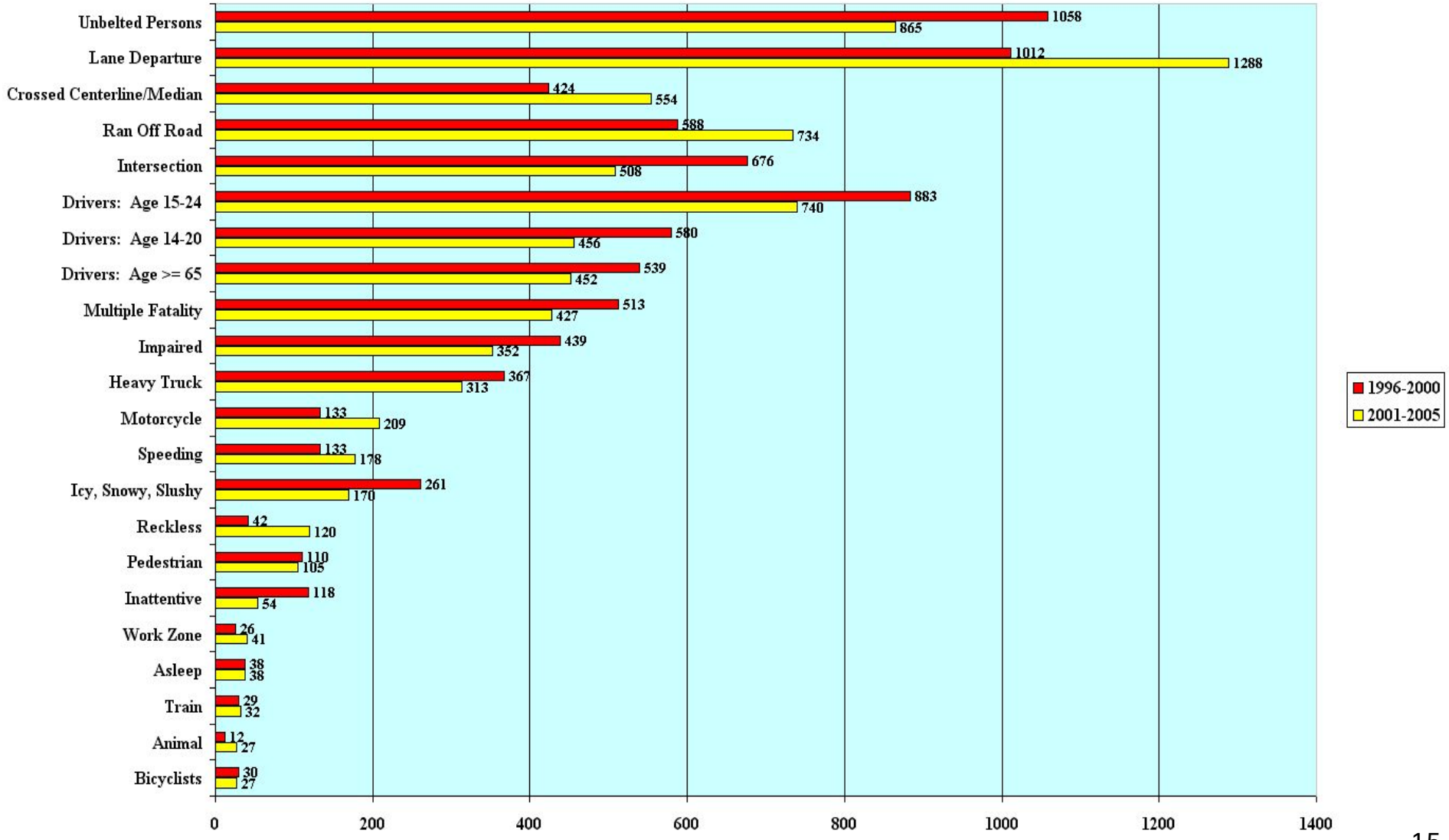
Rural Expressway and Two-lane Primary Roads with the Highest Fatal and Major Injury Crash Density for Speed-related* Crashes



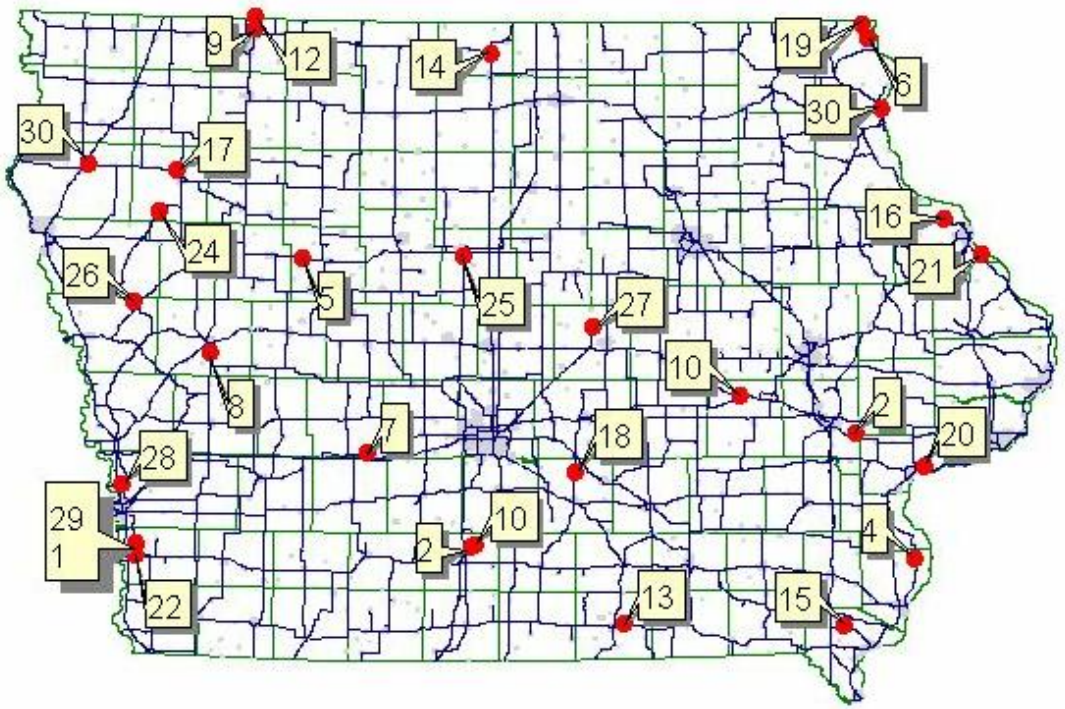
Developing the Iowa CHSP
Identifying Opportunities and Trends

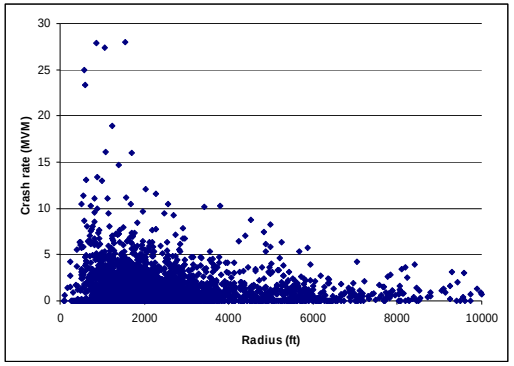
Iowa Crash Deaths Associated with Key Emphasis Areas

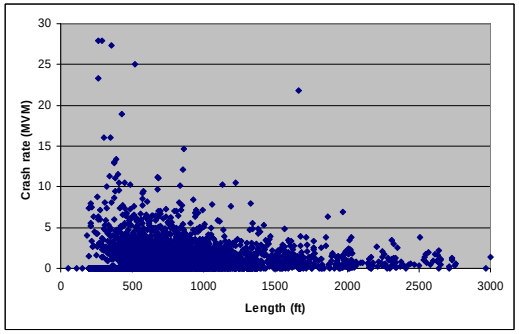


[1]Please note that these categories are not necessarily mutually exclusive - i.e., summing across categories may very well lead to erroneous results. Typical yearly fatality totals for Iowa range from 400-450 deaths.

Primary Highway Curve Crashes



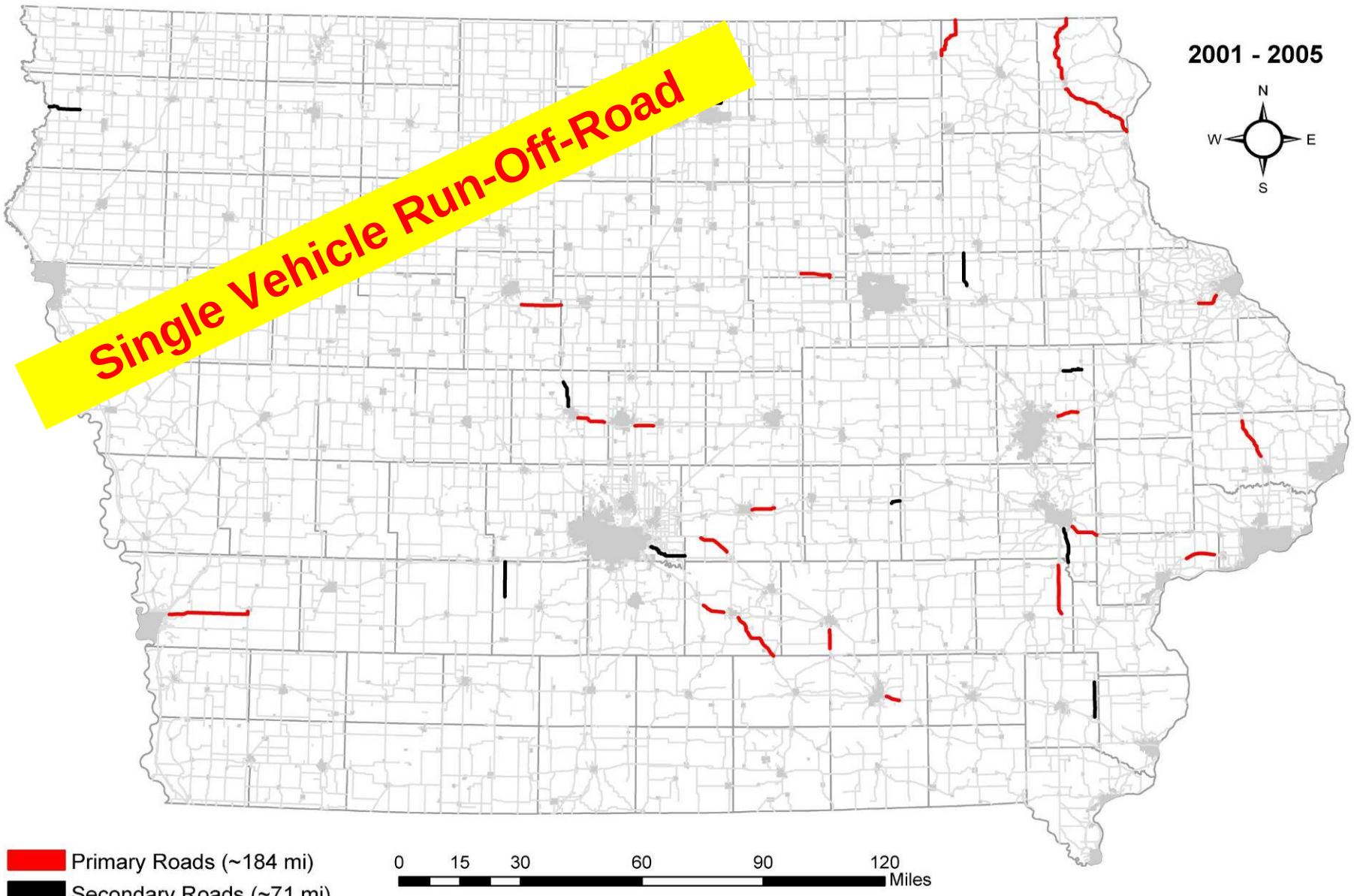




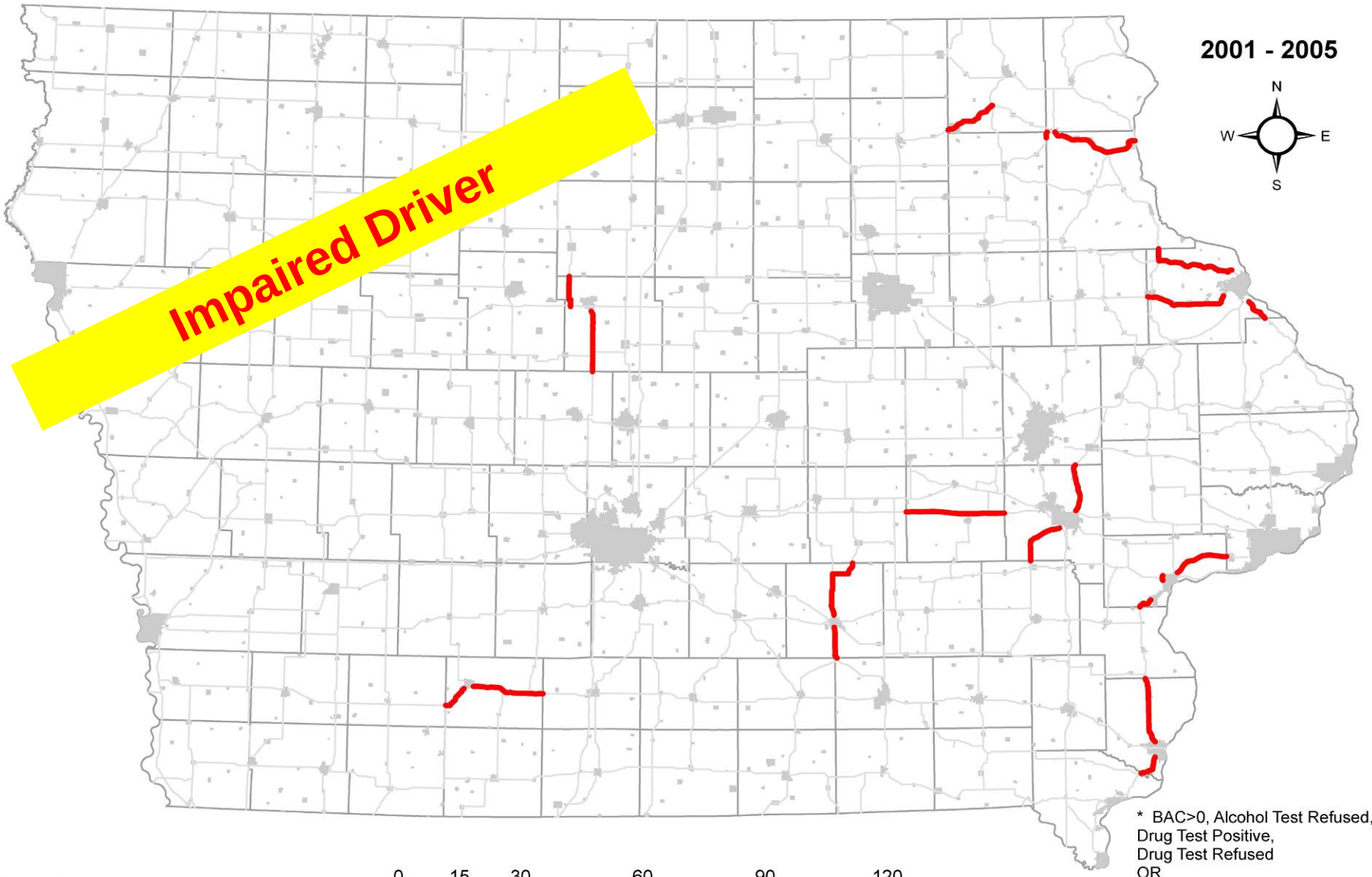
- **Statewide average = 1.1 / MVM (avg radius = 2850 ft., avg length = 870 ft.)**
- **Top 30 average = 11.7 (7.2*) / MVM (avg radius = 1780 ft., avg length = 807 ft.)**
- **Worst (of top 30) = 78 / MVM**
- **5% of crashes occur at top 30 locations (1% of curves)**
- **11% of fatals occur at top 30 locations**

*** Weighted average**

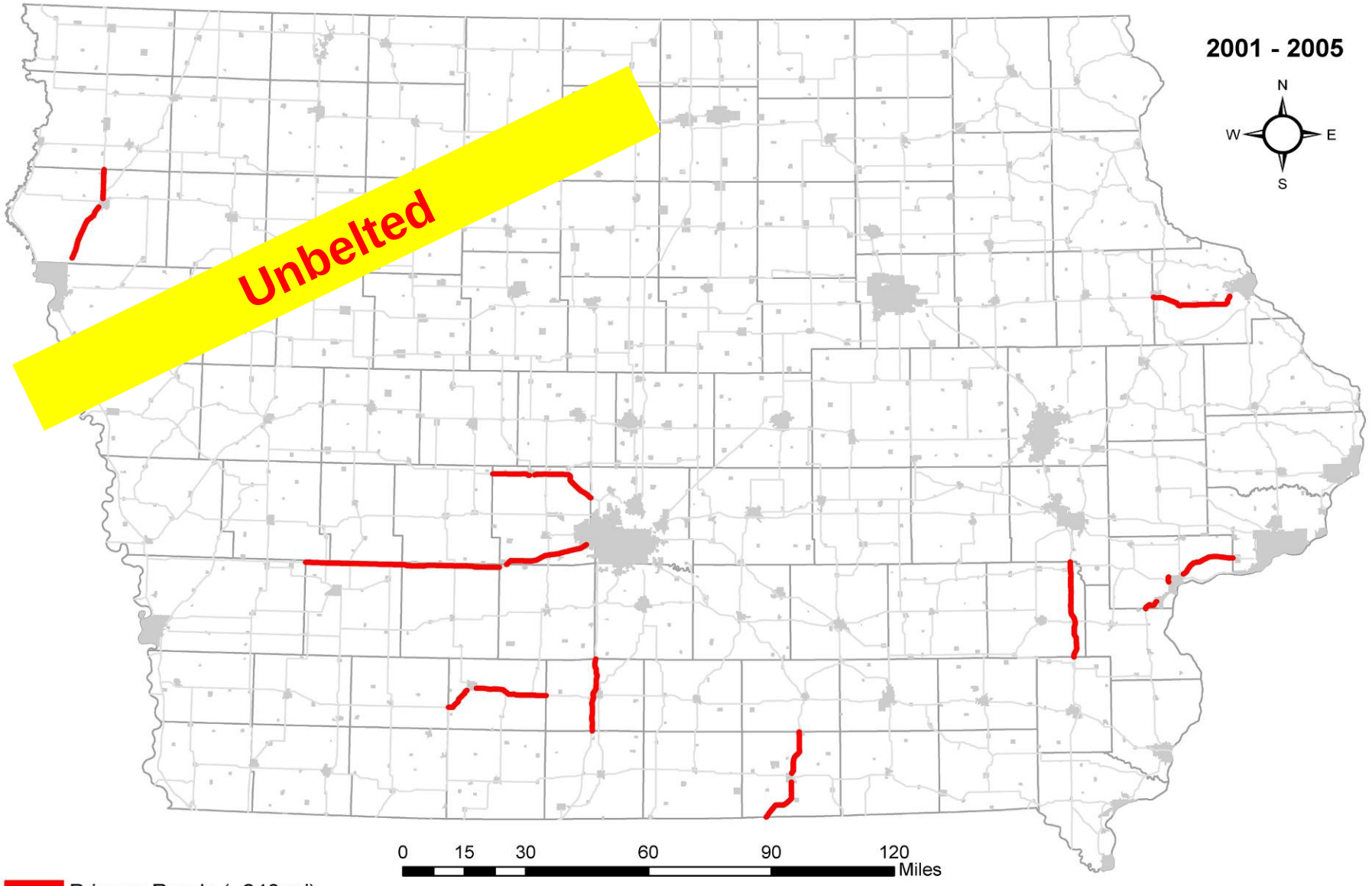
Rural Primary and Paved Secondary Roads with Highest Fatal and Major Injury Crash Density for Single Vehicle Run-off-the-Road Crashes



Rural Primary Roads with the Highest Fatal and Major Injury Crash Density Involving an Impaired Driver*

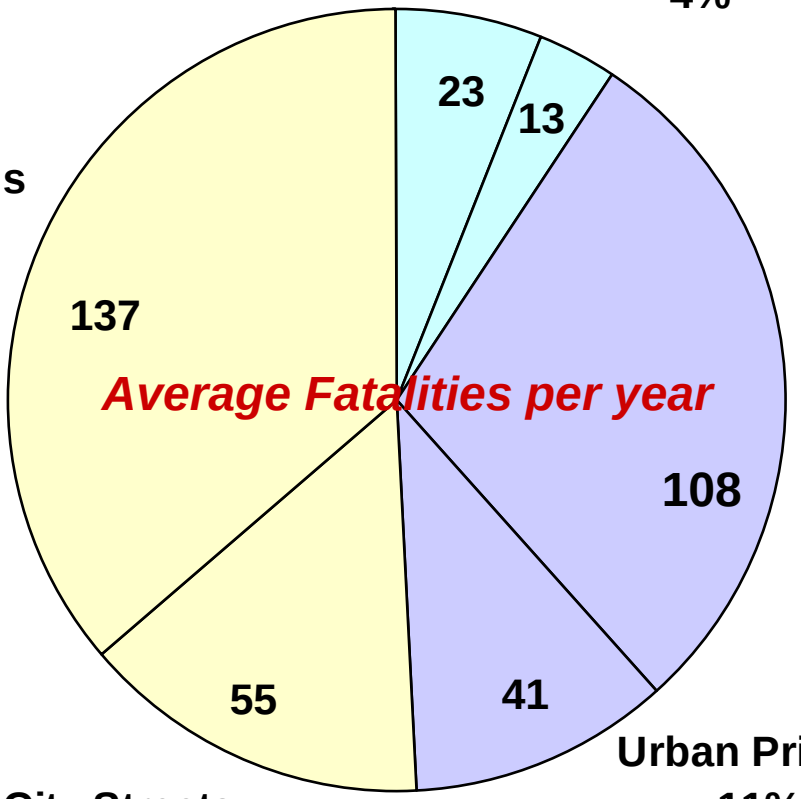


Rural Primary Roads with the Highest Fatal and Major Injury Crash Density of Unbelted Drivers and Passengers*



* Non-Motorcyclist

Iowa DOT/DPS Programs Address Local Safety Needs



State 49%

City/County 51%

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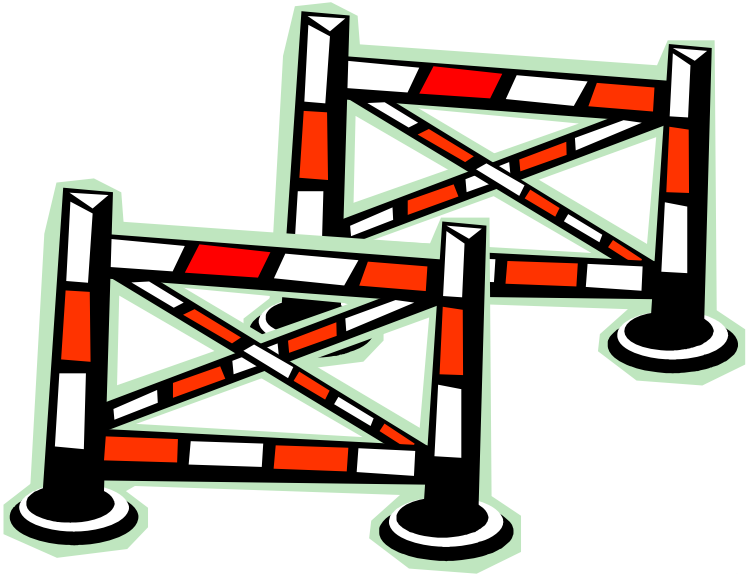
Based on 2002-2006 Crash Fatalities

Enhancing Local Government Safety Culture

- Focus on “Removing the Barriers”
  - Data and Data Analysis
  - Safety Studies
  - Funding



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Iowa DOT Local Safety Programs

Removing barriers to local government safety programs

- Provide crash data by jurisdiction
  - Web-based “profiles” available
  - Commonly requested reports and maps
- Provide both user-friendly and robust data analysis tools
  - Free training and support
  - Timely access to edited crash data
- Provide free “special request” data analysis through university-based Traffic Safety Data Service
- Provide free 100 hours of consultant traffic Safety Studies
- Provide State-funded safety improvement grants
  - ½ % of RUTF
  - $500,000 maximum grant

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Enhancing Legislative Relationships

- Accurate focused data is available virtually “on demand.”

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Iowa's Success

Other Contributing Factors

- Primary Seat Belt Law (90% compliance -10th highest in US)
- GDL Law 1999 (41% citation reduction and 31% crash rate reduction)
- Second-lowest DUI Involvement in fatal crashes (24%)
- Designated State Safety Engineer and 7 staff
- Include low-cost safety improvements in resurfacing projects using 3R funds
- Safety funds programmed based on statewide analyses
  - Allocate to "Worst First"
  - Do not sub-allocate safety funds
- Upgrade 1,000 miles of high-volume high-crash two-lane corridors to four-lane expressways

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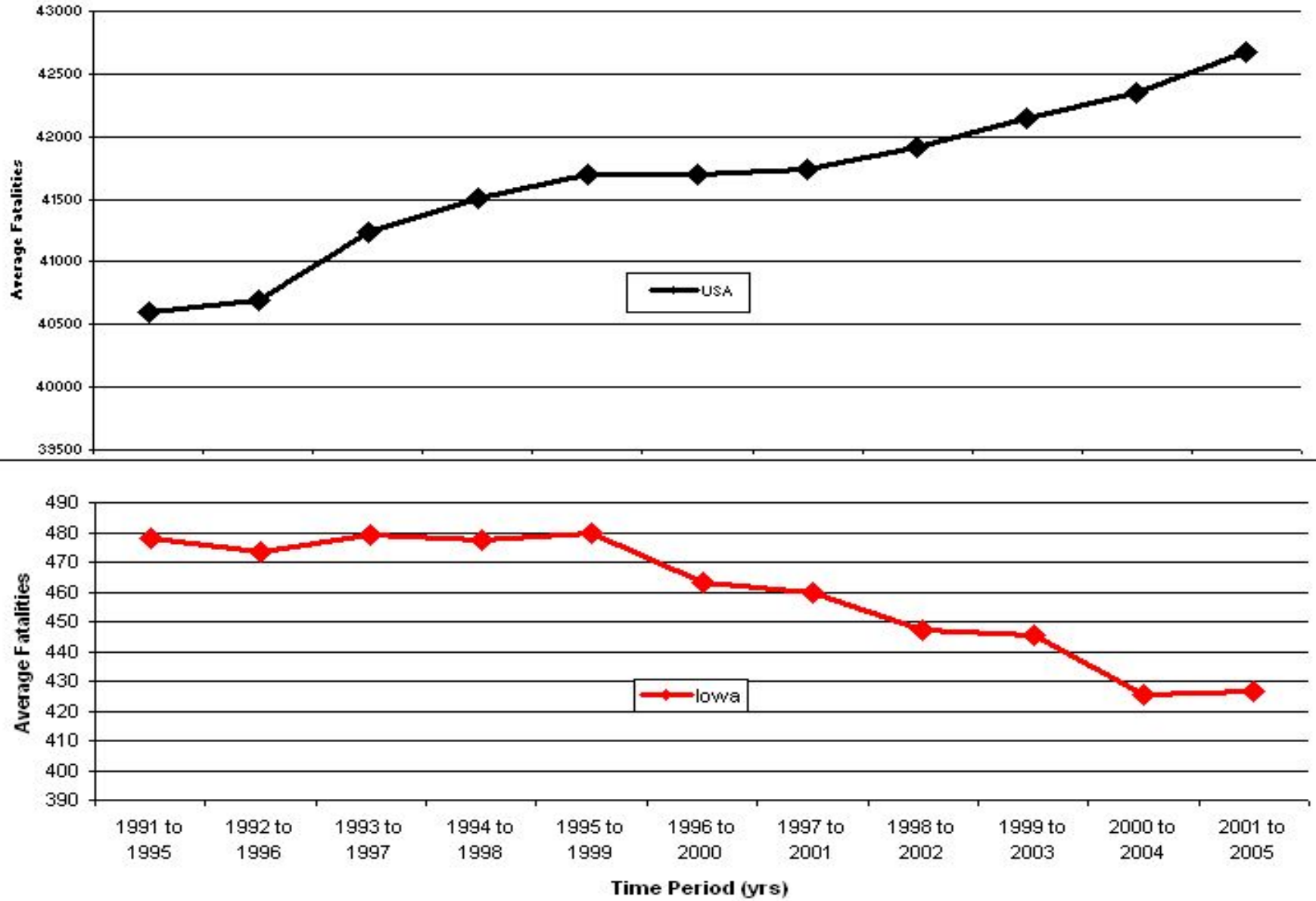
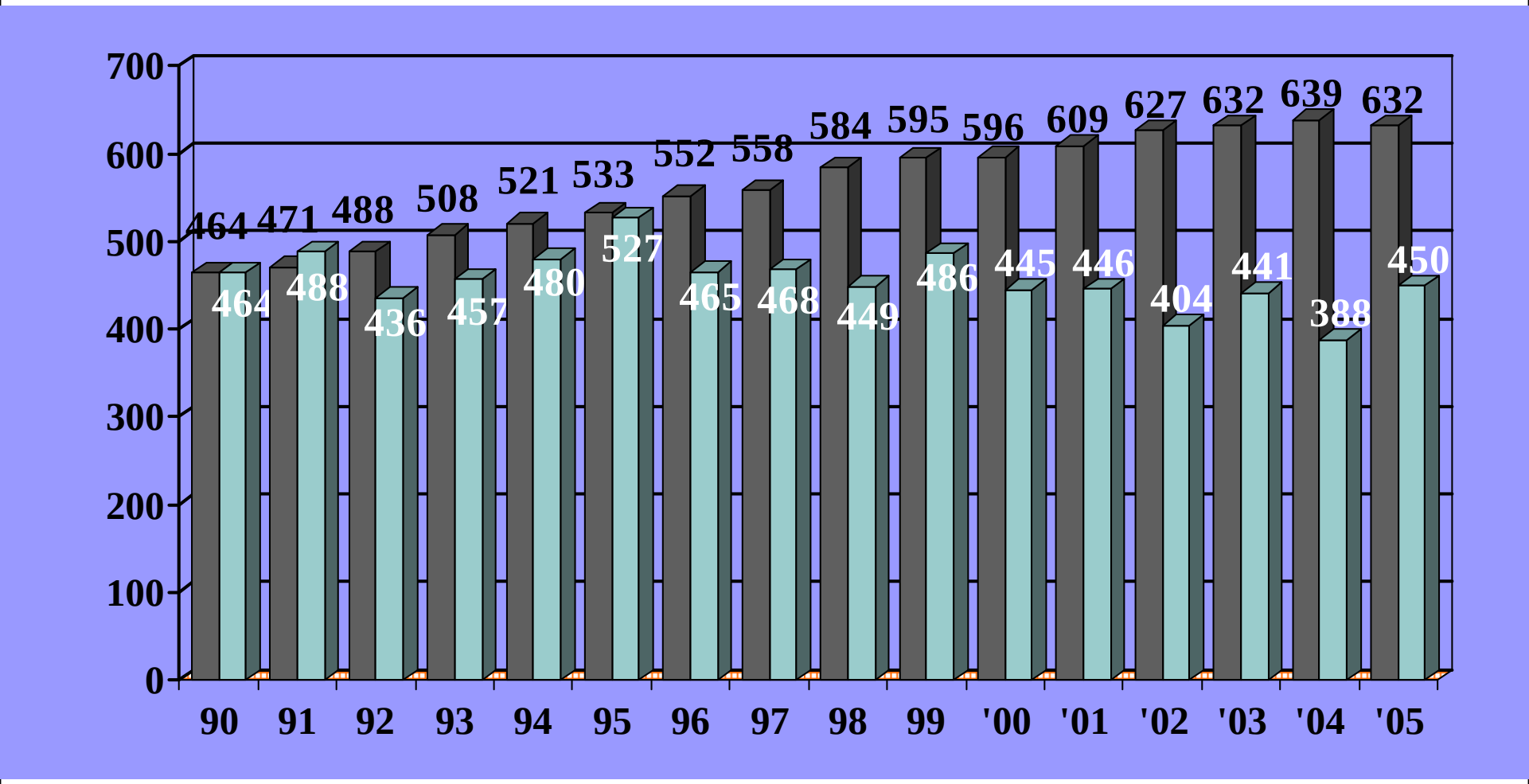
Iowa Return on Investment
Five-year Average Annual Fatality Trend



Actual Fatalities vs. Possible Fatalities

Number of fatalities possible if the rate of fatalities had remained at 1990 level of 2.00 per 100 million vehicle miles traveled



Future Focus Areas

5 Policy Strategy Areas

- Young Drivers
- Occupant protection
- Motorcycle Safety
- Traffic Safety Enforcement
- Traffic Safety Improvement Program

8 Program Strategy Areas

- Lane departure
- Safety Corridors
- Intersections
- Local roads
- Crash data records
- Senior mobility
- Safety training and education
- Unpaved rural roads

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"The care of human life and happiness
…is the first and only objective of good government."

-Thomas Jefferson

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